

Amendments to the Specification:

Please replace the paragraph beginning on page 4, line 21, with the following rewritten paragraph:

B1
There is already known from EP-A-511651 a non-invasive, in-line fluid monitor which includes a length of fluid pipe disposed such that it and the fluid within ~~becomea~~ become a part of the dielectric loading on an energised electromagnetic sensor device. A resonant closed cavity is used to encompass the length of fluid pipe and a process is used to compare changes in the resonant characteristics of the cavity to predetermined data to determine the properties of the fluid. The cavity is in the form of an open, five walled box of an electrically conductive metal, such as copper or brass, having a separable metal lid forming a sixth side to achieve the closed cavity through which the fluid pipe passes. In this arrangement, therefore the fluid flow is confined to the fluid pipe.

Please replace the paragraph beginning on page 5, line 1, with the following rewritten paragraph:

B2
In accordance with a first aspect of the present invention, there is an apparatus for determining ~~an apparatus for determining~~ dielectric properties of an electrically conductive liquid, comprising:-

- an electrically resonant cavity defined by an electrically conductive boundary wall;
- an electrically insulating layer disposed on those parts of the electrically conductive boundary wall defining the interior wall of the cavity;
- an inlet through which the fluid can be introduced into the interior of the cavity, said electrically insulating layer isolating the fluid from said electrically conductive boundary wall;
- an emitter antenna and associated drive electronics for emitting electromagnetic radiation to the cavity, the emitter antenna being electrically isolated from fluid material within the cavity, and
- means for detecting resultant electromagnetic radiation within the cavity.

Please replace the paragraph beginning on page 17, line 4, with the following rewritten paragraph:

B³
To assess the possible effect of further constituents in the flow (in addition to oil, gas and water) experiments have been carried out in which a proportion of sand is added. The results are graphed in Fig 12, where one curve [[A]] was obtained when the cavity contained only water and the other curve ~~while curve B~~ was obtained using 95% water with 5% sand. The dielectric constant of sand is approximately 4.5, and the sand therefore caused a detectable shift in the first resonance peak.

Please replace the paragraph beginning on page 18, line 11, with the following rewritten paragraph:

B⁴
The conclusion to this experiment is that phase may be used to indicate thae presence of a resonance frequency. This technique is useful to obtain the position of the first resonance frequency of the system and therefore provides consistent training data for the neural network. When using the sensor system the position of the resonance frequency of an unknown mixture can be obtained by recording the frequency when the phase shift is ~~-180°C~~ -180° from the first phase resonance curve.